Projector Warping Tool

Ver.1.00

User’s Manual

Hitachi Maxell, Ltd.

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1. Introduction

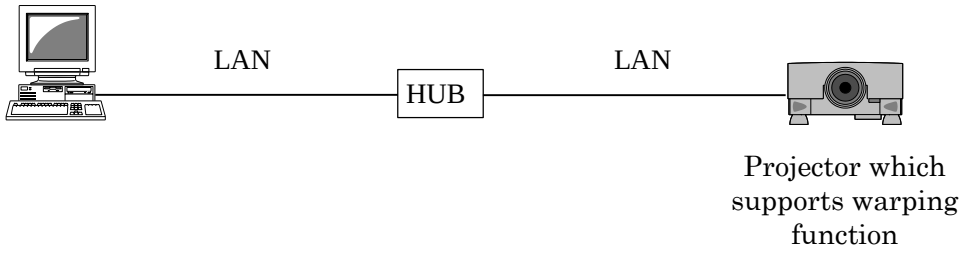
1.1 Features

The Projector Warping Tool is the application to configure the geometric distortion of the projector's images when the images are projected onto screens which have a particular kind of surface such as a cylinder, a spherical shape, etc.

Users can project images on these type of screens by transferring the WarpMap, which is created within this tool, from the PC to a projector which supports the warping function through a network connection.

1.2 System Configuration

The following diagram shows the system configuration for using the projector Warping Tool.



2. Installation

2.1 System Requirements

The following are the requirements of hardware and software to use the Projector Warping Tool.

(1) Operating System

Windows XP Home Edition

Windows XP Professional

Windows Vista Home Basic

Windows Vista Home Premium

Windows Vista Business

Windows Vista Enterprise

Windows Vista Ultimate

Windows 7 Home Basic

Windows 7 Home Premium

Windows 7 Professional

Windows 7 Enterprise

Windows 7 Ultimate

Windows 8

Windows 8 Pro

Windows 8 Enterprise

(2) Display

XGA 1024 x 768 or higher、65,536-colors or higher

(3) CPU

Pentium 4 (2.8 GHz or higher)

(4) Memory

1GB or higher

(5) Hard Disc

Minimum 150MB free space for installation

(6) Wired or Wireless LAN

2.2 Projector Warping Tool Installation

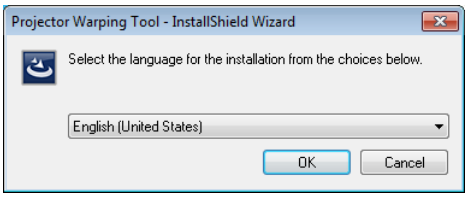
The following describes the installation process for the Projector Warping Tool to the PC with Windows7 installed.

(1) Turn on the PC and log on as Administrator.

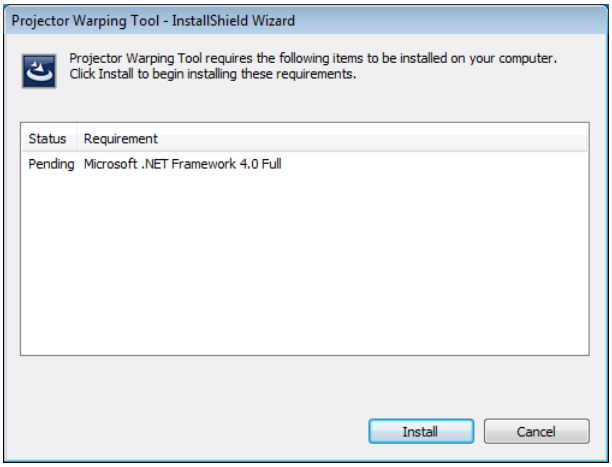
(2) Shut down all the other application.

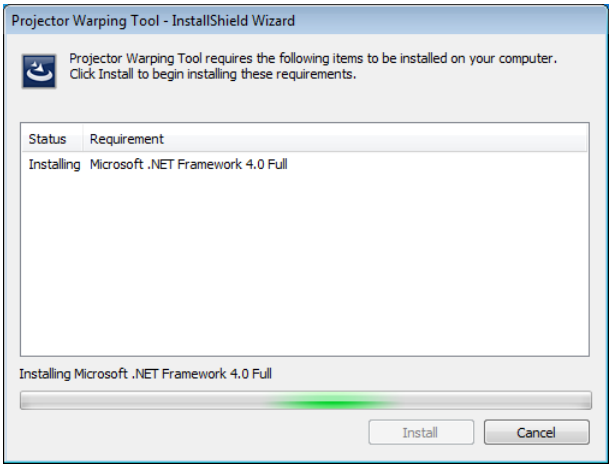
(3) Double click the “ProjectorWarpingTool_v1.00_Setup.exe”.

(4) After a moment, the Choose Setup Language dialog will appear. Select the language you will use in the list and click [OK].

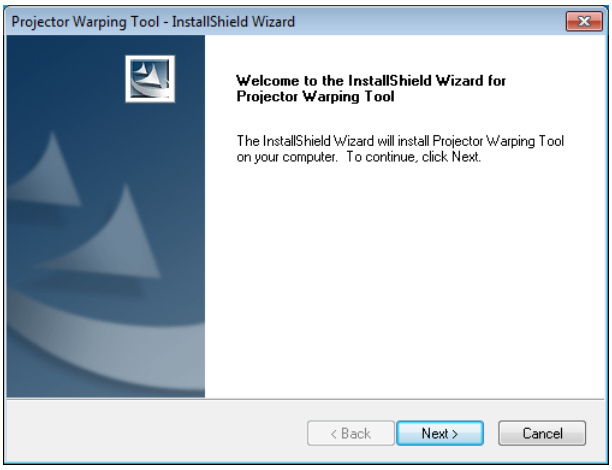

Projector Warping Tool - InstallShield Wizard
Select the language for the installation from the choices below.
English (United States)
OK
Cancel

(5) User have to install the “.NET Framework 4.” if the PC has not installed the “.NET Framework 4.0 or later”.
Click [install] to install the “.NET Framework 4.0”. (This process won’t be needed if “.NET Framework 4.0 or later” is already installed to your PC.)

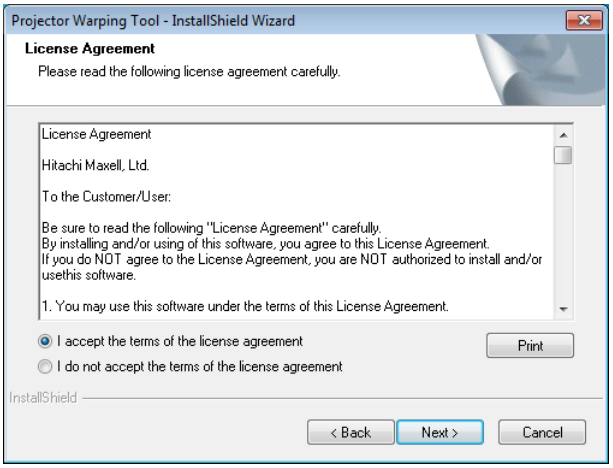

Projector Warping Tool - InstallShield Wizard
Projector Warping Tool requires the following items to be installed on your computer. Click Install to begin installing these requirements.
Status
Requirement
Pending
Microsoft .NET Framework 4.0 Full
Install
Cancel


Projector Warping Tool - InstallShield Wizard
Projector Warping Tool requires the following items to be installed on your computer. Click Install to begin installing these requirements.
Status
Requirement
Installing
Microsoft .NET Framework 4.0 Full
Installing Microsoft .NET Framework 4.0 Full
Install
Cancel

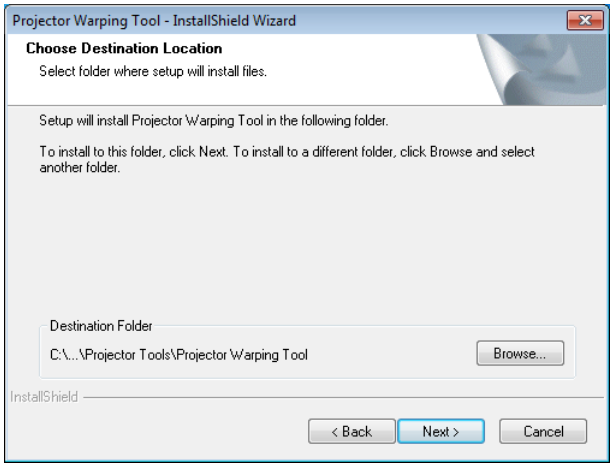
(6) The Welcome dialog will appear. Click [Next].


Projector Warping Tool - InstallShield Wizard
Welcome to the InstallShield Wizard for Projector Warping Tool
The InstallShield Wizard will install Projector Warping Tool on your computer. To continue, click Next.
< Back
Next >
Cancel

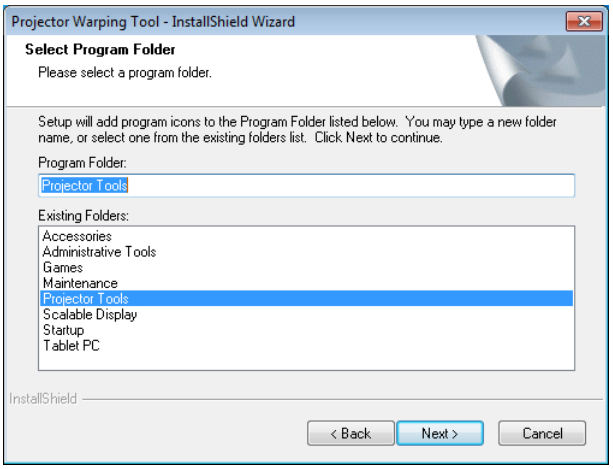
(7) License agreement dialog appears. If you accept it, select “I accept the terms of the license agreement” and press [Next].


Projector Warping Tool - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
License Agreement
Hitachi Maxell, Ltd.
To the Customer/User:
Be sure to read the following "License Agreement" carefully.
By installing and/or using of this software, you agree to this License Agreement.
If you do NOT agree to the License Agreement, you are NOT authorized to install and/or usethis software.
1. You may use this software under the terms of this License Agreement.
I accept the terms of the license agreement
I do not accept the terms of the license agreement
Print
InstallShield
< Back
Next >
Cancel

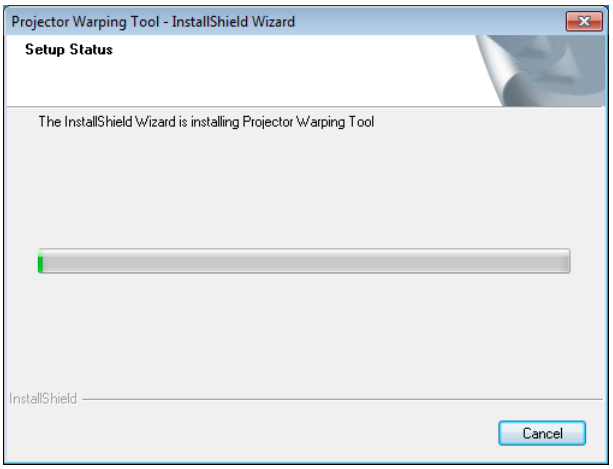
(8) The Choose Destination Location dialog appears. Click [Next]. If you want to install to other the destination, click [Browse] and select the destination.


Projector Warping Tool - InstallShield Wizard
Choose Destination Location
Select folder where setup will install files.
Setup will install Projector Warping Tool in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\...\Projector Tools\Projector Warping Tool
Browse...
InstallShield
< Back
Next >
Cancel

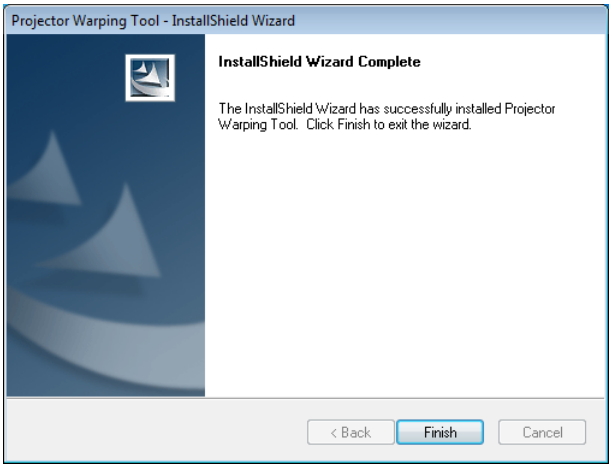
(9) The Select Program Folder diagram appears. Confirm if the name “Projector Tools” is OK to be registered in the [Start] menu’s [Program], and click [Next]. If you want to change the folder name, please input the name you like and click [Next].



(10) The installation process will be started.



(11) “InstallShield Wizard Complete” dialog will be shown when the installation is completed. Click [Finish] to finish the installation.


Projector Warping Tool - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Projector Warping Tool. Click Finish to exit the wizard.
< Back
Finish
Cancel

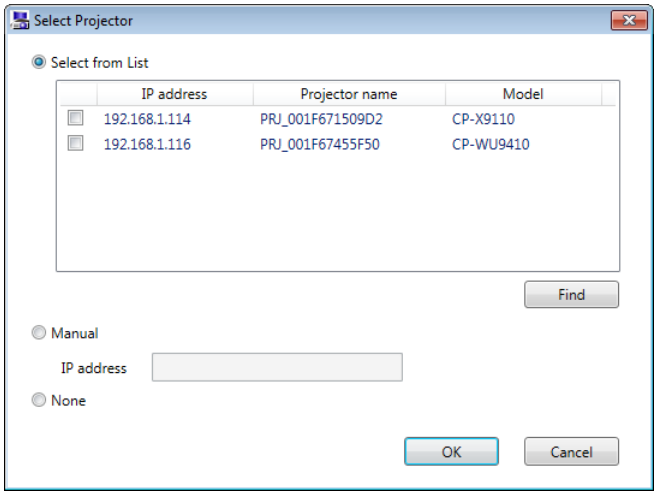
After the installation is completed properly, the folder registered in the step (9) will appear in [Start] menu [All programs]. “Projector Warping Tool” will appear if the installation was successful. The shortcut for “Projector Warping Tool” will also be made on the desktop.

3. Operating Instructions

3.1 Start-up Projector Warping Tool

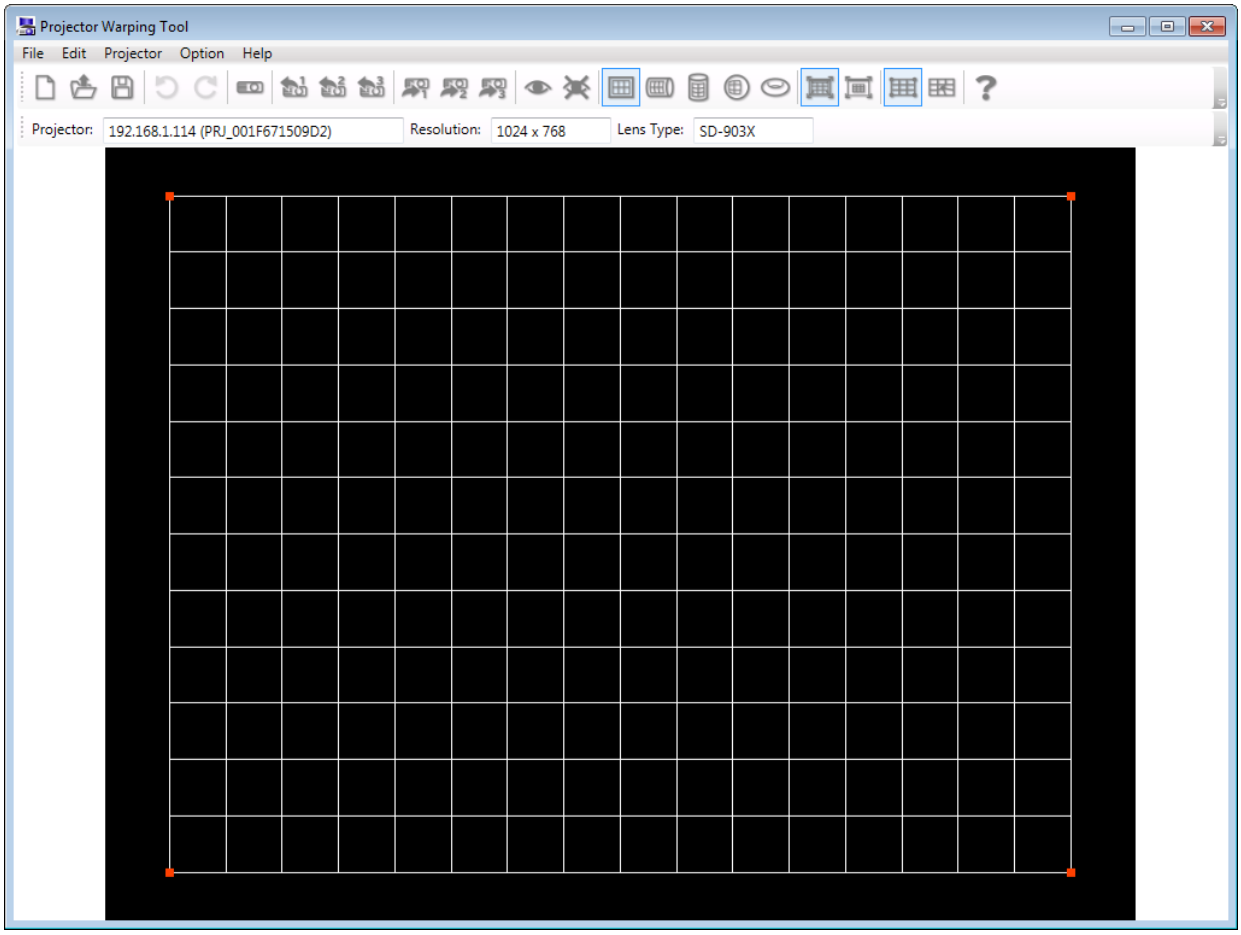
Select Windows [Start] → [Projector Tools] → [Projector Warping Tool]. Or double click the shortcut of "Projector Warping Tool" icon on the desktop.

The [Select Projector] window will then appear.



Specify the available projector or select [None] and click [OK], the Main window will then appear.

When [Cancel] is clicked during this start-up process, the Projector Warping Tool is terminated.



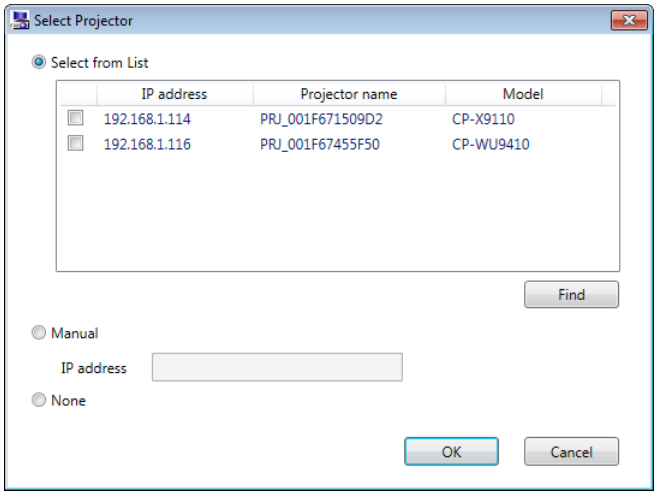
3.2 Quit Projector Warping Tool

Select [File] – [Exit] or click [x] button to quit the Projector Warping Tool.

Confirmation dialogue will then appear, then select [Yes] to finish.

3.3 Select Projector

Following is the [Select Projector] window which appears during the start-up procedure.



Selecting [Projector] - [Select Projector] in the menu or click the [ ] button at the tool bar to show this window.
There are three ways to select the projector which you want to connect to.

(1) Select from List

The projectors, which support warping function and exist on the network, will be searched and shown on the list when the [Projector Select] window appears.

Select the projector from the list which you want to connect to.

Click [Find] to search the projector again.

(2) Manual

Set the IP address of the projector manually to connect.

(3) None

It won't connect to the projector.

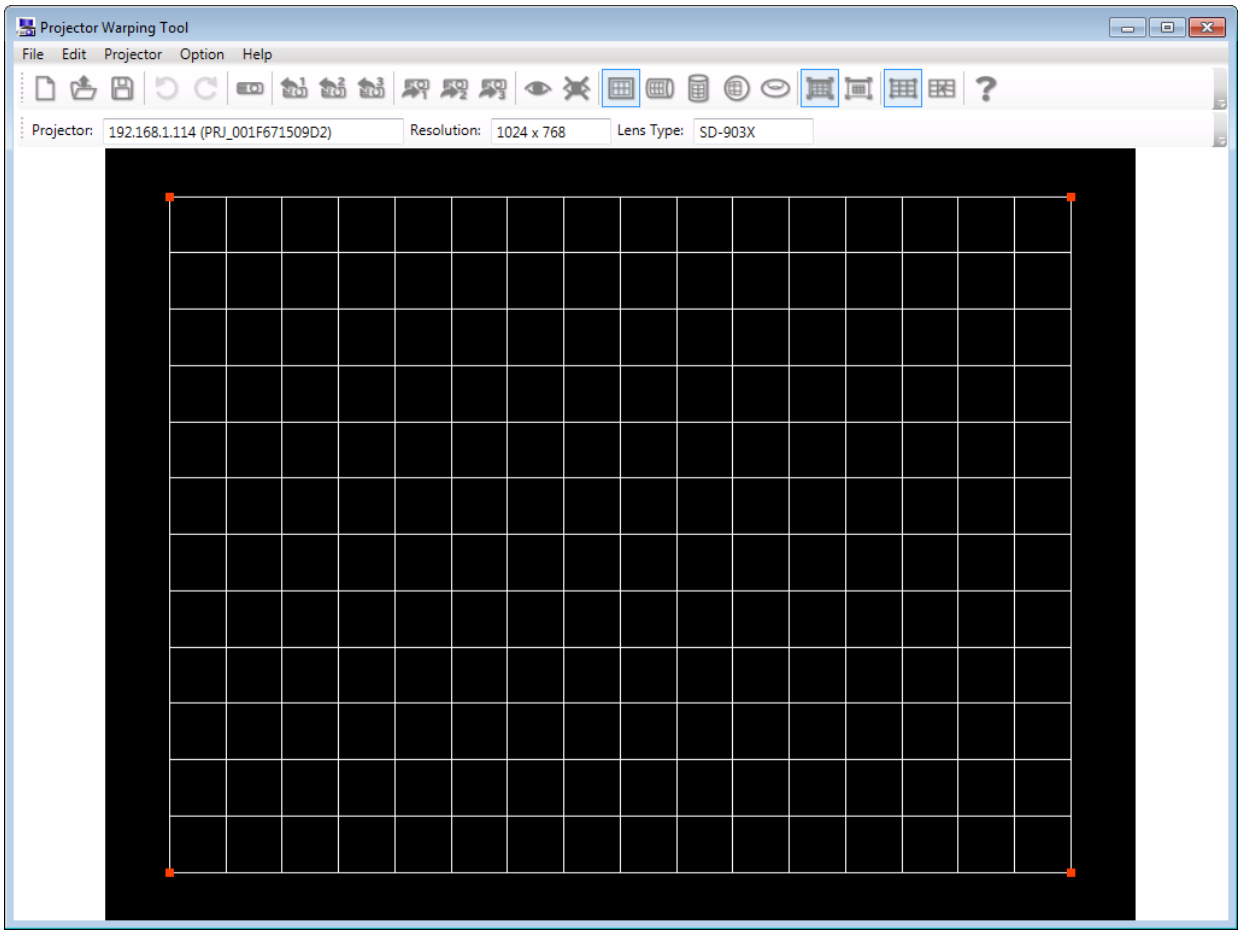
Click the [OK] button and then the connection is checked between the selected projector.
Main window will be shown when successfully connected with the projector.

Error message will appear when the connection failed.

When [Cancel] button is clicked, the procedure for selecting the projector is canceled and terminates the Projector Warping Tool or to go back to the Main window.

3.4 Main Window

Following is the Main window.



(1) Menu

Following are the Menu items and Function overview in Main window.

Menu	Sub Menu	Function overview
File	New	Initialize the edit file
	Open…	Open the existing WarpMap file
	Save As…	Save the WarpMap file
	Exit	Quit Projector Warping Tool
Edit	Undo	Cancel the last operation
	Redo	Re execute the canceled operation
Projector	Select Projector	Display the [Select Projector] window and set the projector to be connected.
	Resolution	Select the projector's resolution. Acquire the resolution data from the specified projector and the resolution will be selected. The resolution cannot be changed if the data is acquired from projector.
	1024 x 768	Select when projector's resolution is XGA (1024 x 768)
	1280 x 800	Select when projector's resolution is WXGA (1280 x 800)
	1920 x 1200	Select when projector's resolution is WUXGA (1920 x 1200)
	Lens Type	Select the projector's lens type. Acquire the lens type data from the specified projector and the type will be selected. The type cannot be changed if the data is acquired from projector.
	1: USL-901	Select when USL-901 is installed.
	2: SL-902	Select when SL-902 is installed.
	3: SD-903X	Select when SD-903X is installed.
	4: SD-903W	Select when SD-903W is installed.
	5: ML-904	Select when ML-904 is installed.
	6: LL-905	Select when LL-905 is installed.
	7: UL-906	Select when UL-906 is installed.

Continuation of the list

Projector	Load WarpMap	Load the WarpMap from the projector
	Warp1	Retrieve the WarpMap saved in Warp1
	Warp2	Retrieve the WarpMap saved in Warp2
	Warp3	Retrieve the WarpMap saved in Warp3
	Send WarpMap	Transfer the WarpMap to the projector.
	Warp1	Transfer the WarpMap which is shown in the edit area to Warp1
	Warp2	Transfer the WarpMap which is shown in the edit area to Warp2
	Warp3	Transfer the WarpMap which is shown in the edit area to Warp3
	Preview	Set On/Off to display the preview of WrapMap
	On	Turn On the WarpMap preview mode of the projector
	Off	Turn Off the WarpMap preview mode of the projector
	Warping Mode	Set projector's Warping mode
	Off	Turn Off the projector's Warping mode
	1	Set projector's Warping to 1
	2	Set projector's Warping to 2
	3	Set projector's Warping to 3
Option	Screen Type	Select Screen type which image will be projected
	Flat	Select when flat surface screen is used
	Horizontal Cylinder	Select when horizontal cylinder surface screen is used
	Vertical Cylinder	Select when vertical cylinder surface screen is used
	Sphere	Select when Sphere surface screen is used
	Torus	Select when torus surface screen is used
	View mode	Select View mode of the edit area.
	Data will be displayed in selected window size	Display the Edit area in the current window size.
	Data will be displayed in the actual window size	Display Edit area be fixed in the projector's resolution.
	Edit Mode	Select the Edit mode for WarpMap
	Point	Select when editing the outer frame. The controllable point is different for selected screen type.
	Grid	Select when editing the grid.
Help	Contents	Display help for Projector Warping Tool
	About	Display version information of Projector Warping Tool

(2) Tool Bar

Following are the Tool Bar icon's and it's corresponding menu.

Icon	Corresponding Menu
	[File] - [New]
	[File] - [Open]
	[File] - [Save As]
	[Edit] - [Undo]
	[Edit] - [Redo]
	[Projector] - [Select Projector]
	[Projector] - [Load WarpMap] - [Warp1]
	[Projector] - [Load WarpMap] - [Warp2]
	[Projector] - [Load WarpMap] - [Warp3]
	[Projector] - [Send WarpMap] - [Warp1]
	[Projector] - [Send WarpMap] - [Warp2]
	[Projector] - [Send WarpMap] - [Warp3]
	[Projector] - [Preview]－[On]
	[Projector] - [Preview]－[Off]

Continuation of the list

	[Option] - [Screen Type] - [Flat]
	[Option] - [Screen Type] - [Horizontal Cylinder]
	[Option] - [Screen Type] - [Vertical Cylinder]
	[Option] - [Screen Type] - [Sphere]
	[Option] - [Screen Type] - [Torus]
	[Option] - [View Mode] - [Data will be displayed in selected window size]
	[Option] - [View Mode] - [Data will be displayed in the actual window size]
	[Option] - [Edit Mode] - [Point]
	[Option] - [Edit Mode] - [Grid]
	[Help] - [Contents]

(3) Projector Box

Selected projector is displayed in the box in the form of an “IP address (projector name)” when you selected your projector from the “List” in the [Select Projector] window.

When you select your projector by setting the IP address manually, the IP address is only displayed.

“Unselected” is displayed if you selected “None” in the [Select Projector] window.

(4) Resolution Box

Resolution of the projector which you selected in [Select Projector] window is displayed.

“1024x768” will be displayed if you didn’t select the projector.

Resolution displayed in the box will change if you change it in the menu.

(5) Lens type Box

Lens type of the projector which you selected in [Select Projector] window is displayed.

“SD-903X” will be displayed if you didn’t select the projector.

Lens type displayed in the box will change if you change it in the menu.

3.5 Editing WarpMap

3.5.1 Screen Type

Select the shape of the screen which image will be projected from the [Option] - [Screen type] in the menu the Main window, or click / / / / button at the tool bar. There are 5 types of images you can choose from :

- Flat ---
- Horizontal Cylinder ---
- Vertical Cylinder ---
- Sphere ---
- Torus ---

3.5.2 View Mode

Select view mode from the [Option] - [View mode], or click / button at the tool bar. There are 2 modes you can choose.

(1) Data will be displayed in selected window size

Edit area is modified to be displayed in the current window size so that the full WarpMap can be shown at all times.

(2) Data will be displayed in the actual window size

Edit area's resolution is fixed to the projector's resolution. If it doesn't fit inside the window, scroll bar will be displayed.

3.5.3 Edit Mode

Select Edit mode from the [Option] - [Edit Mode], or click / button at the tool bar. There are 2 modes you can choose.

(1) Point

This mode is to edit the outer frame of the WarpMap. The controllable point is different for selected screen type.

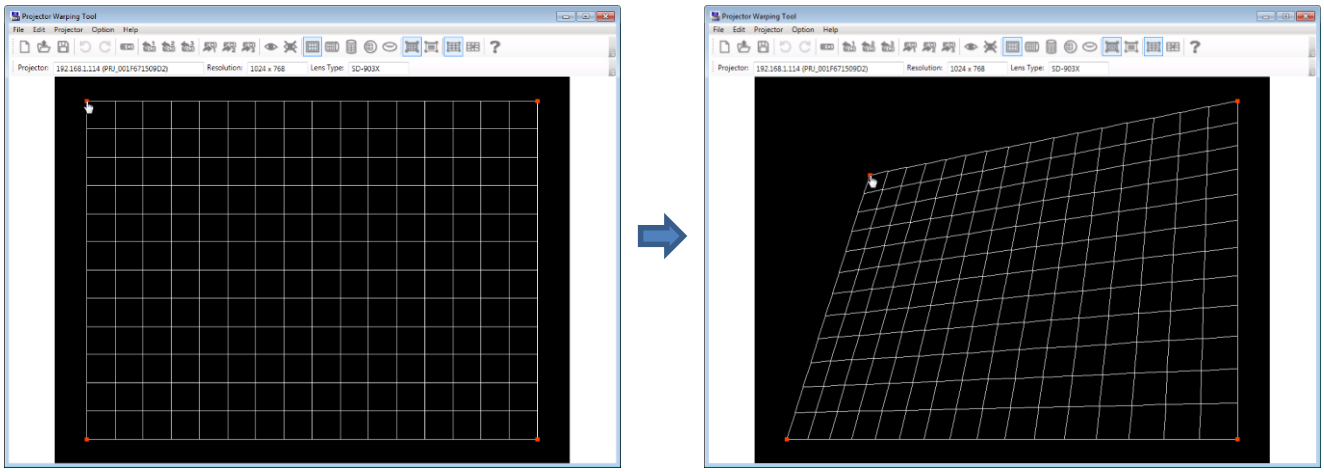
(2) Grid

This mode is to edit the grid in the WarpMap individually.

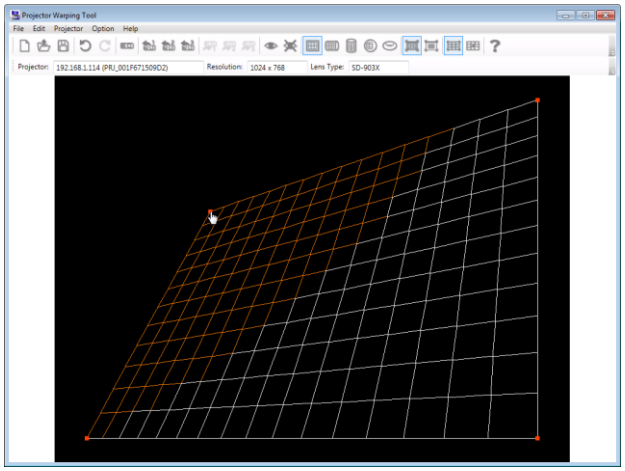
3.5.4 Operating the Editing Area

User can edit the WarpMap by Grab, Drag and Drop with the editing point (■) in the edit area.

When mouse cursor is moved near the editing point (■) the figure changes from to and you are able to drag with the left button of the mouse and drop at the necessary point. You cannot edit the shape anymore if the figure turns to .



If the WarpMap is changed to the shape which a projector cannot support, the color of the line will turn to orange as shown below.



WarpMap cannot be transferred to the projector if orange lines are displayed.

(Preview is still displayed and available)

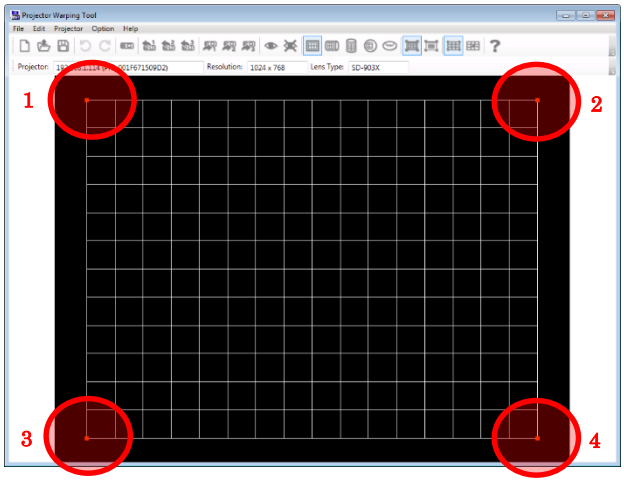
Please edit the WarpMap within the range to prevent the line from turning orange.

Editing point differs based on which Edit Mode and Screen type is selected.

Following describes how the editing point will be displayed based on the selected Edit Mode and Screen type.

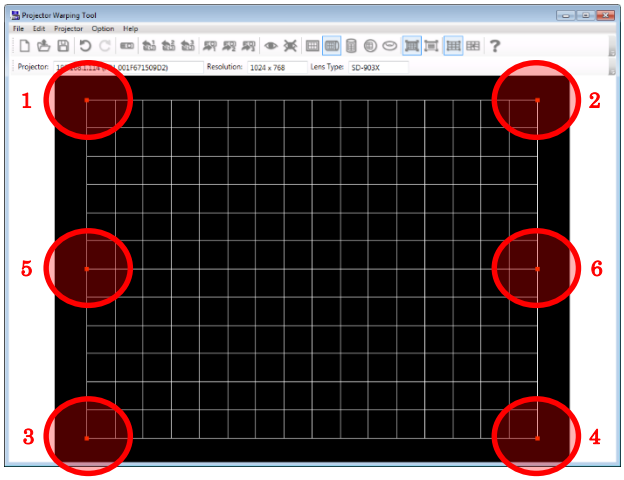
(1) Edit mode: Point, Screen type: Flat

There are 4 Edit points as shown below.

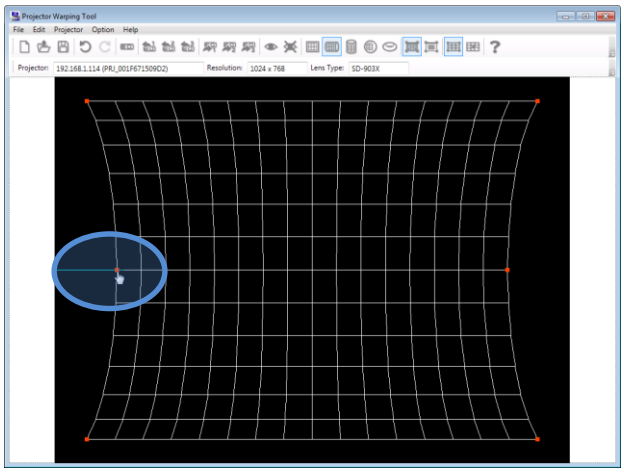


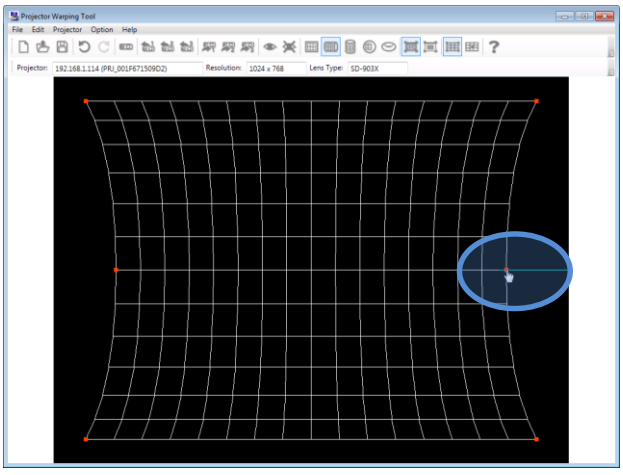
(2) Edit mode: Point, Screen type: Horizontal Cylinder

There are 6 Edit points as shown below.



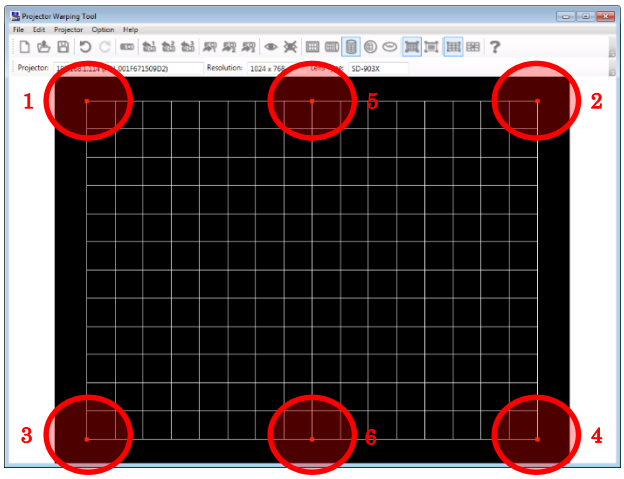
When editing point 5 or 6, the blue guide line appears as shown below. Drag the point along the guide line by using mouse.



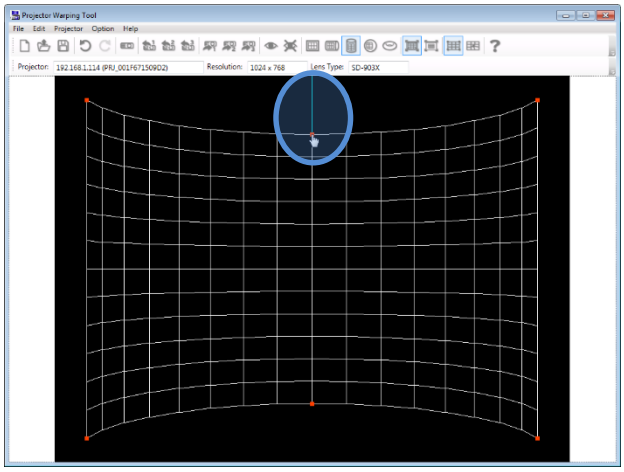


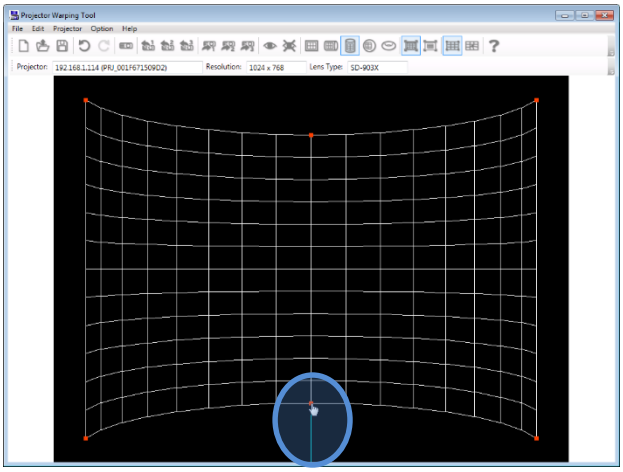
(3) Edit mode: Point, Screen type: Vertical Cylinder

There are 6 Edit points as shown below



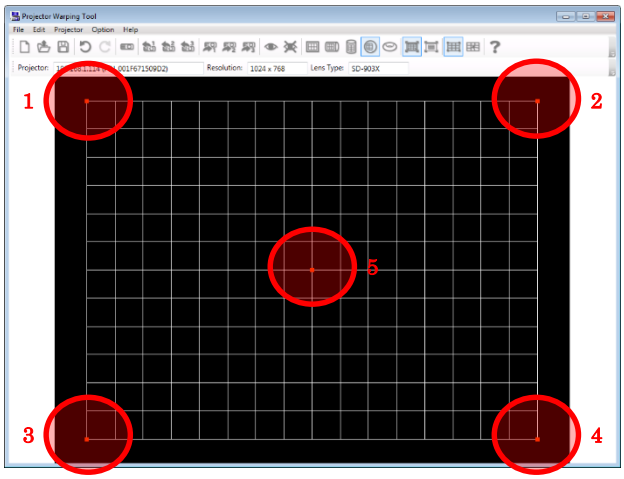
When editing point 5 or 6, the blue guide line appears as shown below. Drag the point along the guide line by using mouse.



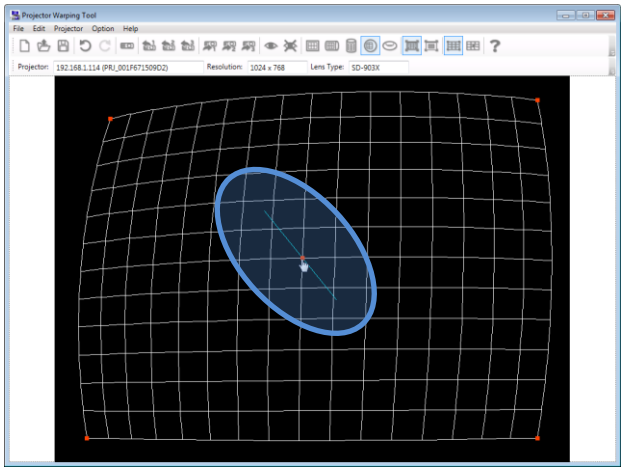


(4) Edit mode: Point, Screen type: Sphere

There are 5 Edit points as shown below.



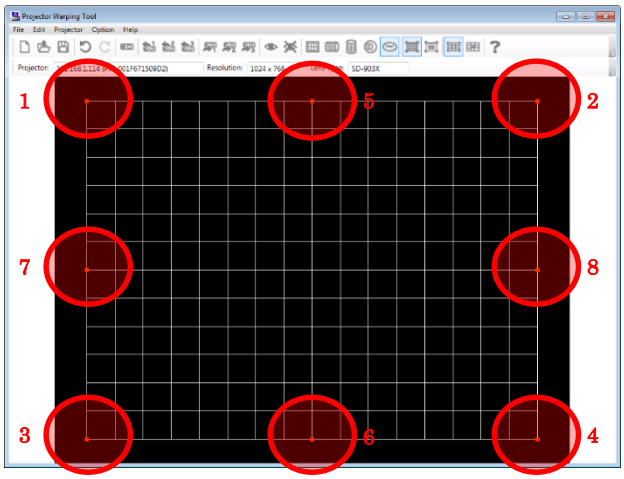
When editing point 5, the blue guide line appears as shown below. Drag the point along the guide line by using mouse.



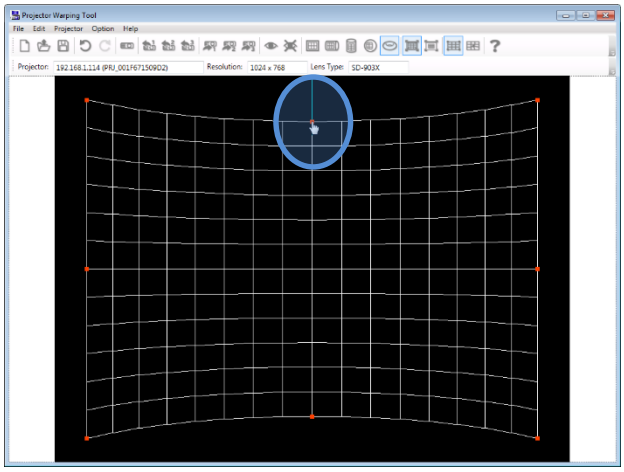
Point 5 can be edited after the point 1 - 4 is moved.

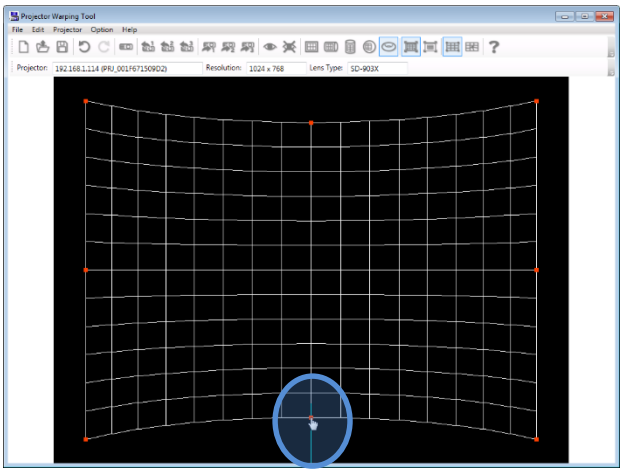
(5) Edit mode: Point, Screen type: Torus

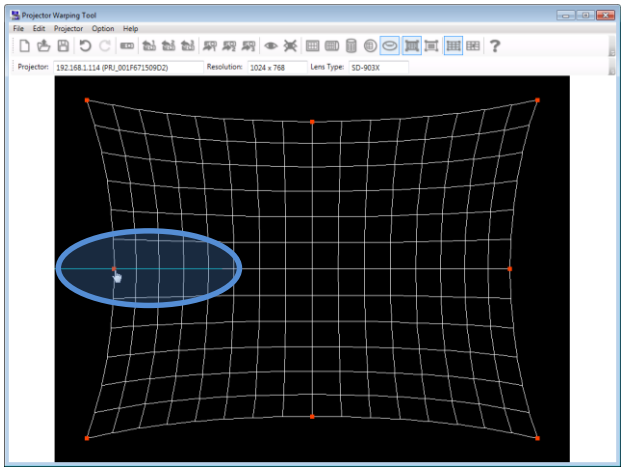
There are 8 Edit points as shown below.

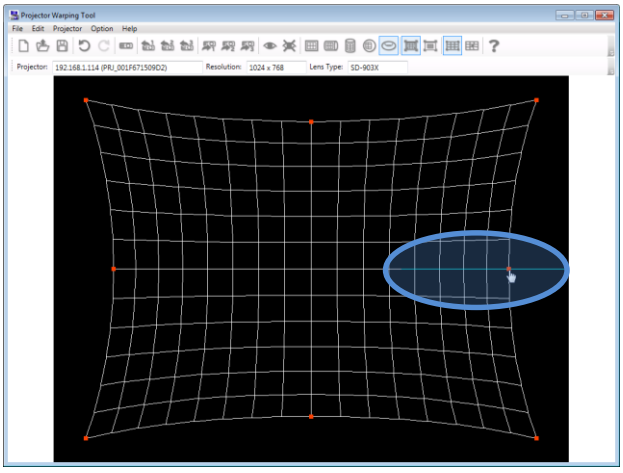


When editing point 5 - 8, the blue guide line appears as shown below. Drag the point along the guide line by using mouse.





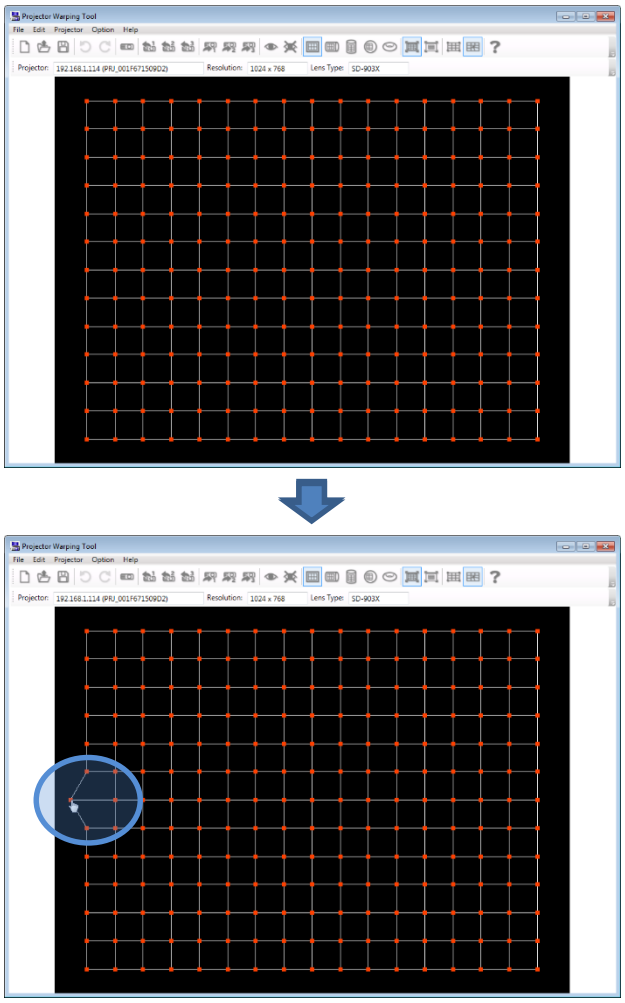




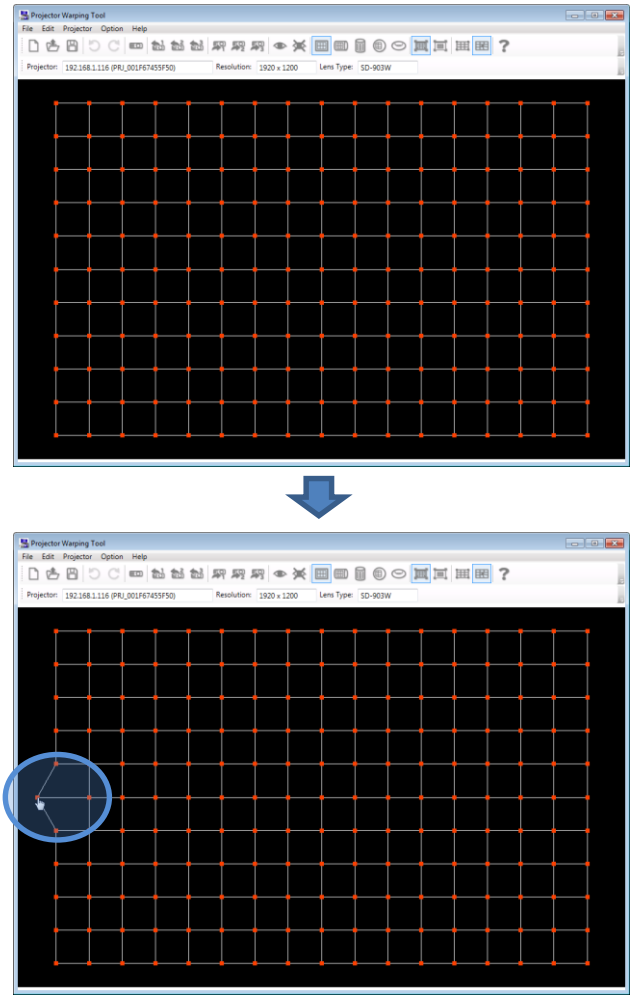
(6) Edit mode: Grid,

There are 221 edit points for XGA and 187 edit points for WXGA/WUXGA regardless of the screen type.

XGA



WXGA/WUXGA



3.6 Initialize the WarpMap

User can Initialize the WarpMap displayed in edit area by selecting [File] - [New] from the menu or clicking the button at the tool bar in the main window.

Confirmation message will appear if there is a WarpMap which the user is editing.

3.7 Open the WarpMap

User can open the existing WarpMap file by selecting [File] - [Open] from the menu or clicking the button at the tool bar in the main window. Please select the WarpMap file (extension: warp2) for Projector Warping Tool.

User cannot open the WarpMap file when the resolution or the lens type of the selected projector and WarpMap file doesn't match.

In this case, please change the projector to "Unselected" in the [Select Projector] window and open the WarpMap again.

Selected WarpMap is displayed on the main window after it is loaded correctly.

Confirmation message will appear if there is a WarpMap which user is editing.

3.8 Save WarpMap

User can save the edited WarpMap by selecting [File] - [Save As] from the menu or click the button at the tool bar in the main window. Please select the WarpMap file (extension: warp2) for Projector Warping Tool.

Please put the file name and select the destination to save in the Save As window of the Windows Standard type. WarpMap file is saved with the extension of .warp2.

3.9 Display Preview

User can check how the WarpMap under editing is displayed by using the Preview function.

Please select [Projector] - [Preview] - [On] from the menu or click the button at the tool bar in the main window. Please select the WarpMap file (extension: warp2) for Projector Warping Tool.

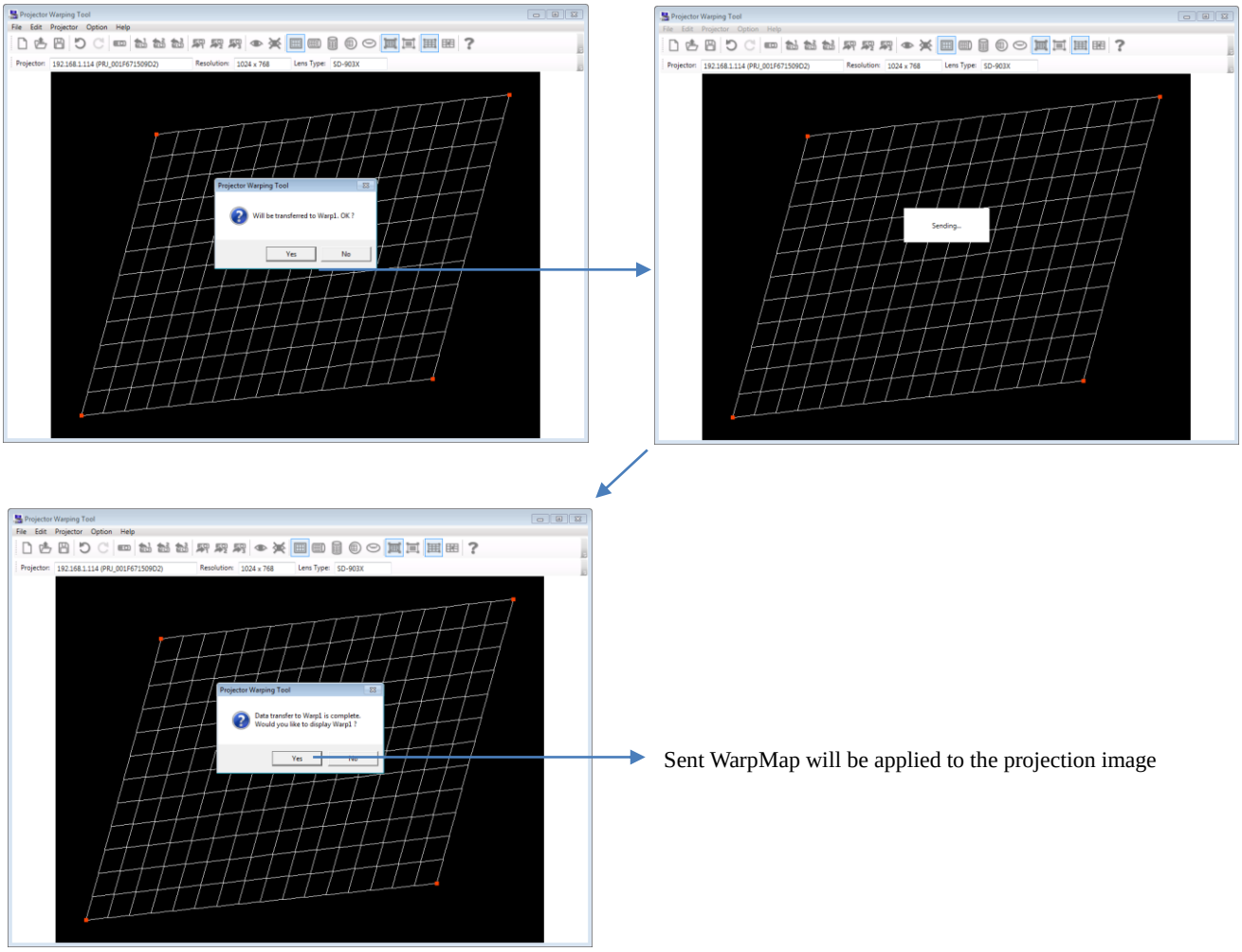
The projected image will show the same image as edit area in the main window when preview function is set to On.

When the user moves the cursor in the edit area, the cursor in the projected image will move in the same way. When the user drags and drops the edit point, the WarpMap which is displayed in the projected image will be updated when the edit point is dropped.

Please select [Projector] - [Preview] - [Off] in the menu or click the button at the tool bar in the main window to quit displaying the preview.

3.10 Send WarpMap

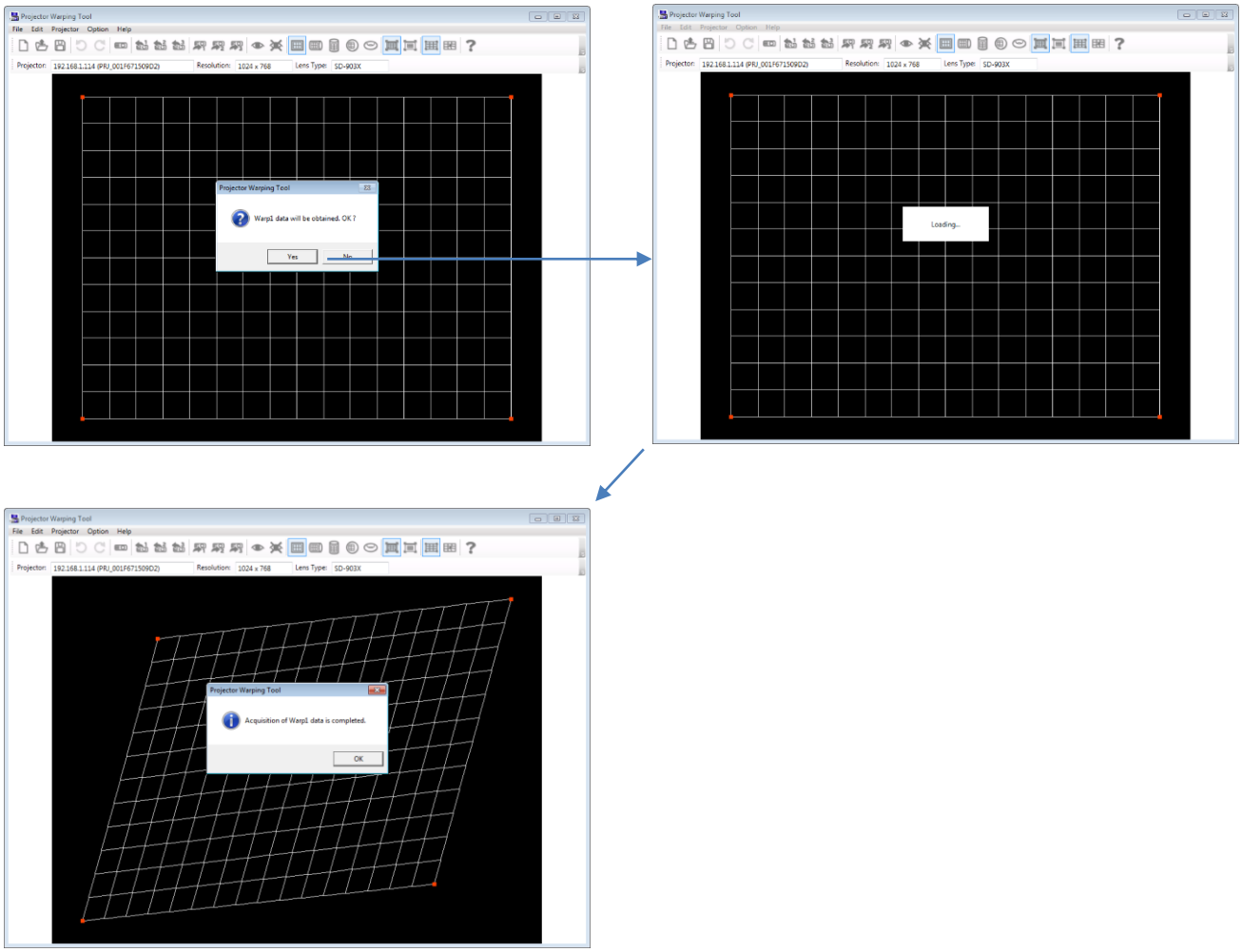
User can send the WarpMap file, which the user created, to the projector by selecting [Projector] - [Send WarpMap] - [Warp1] / [Warp2] / [Warp3] from the menu or clicking the / / button at the tool bar in the main window. Please click [Yes] in the confirmation message window to transfer the WarpMap displayed in the edit area to the specified storage location. The display confirmation message will appear when sending the WarpMap is completed. Select [Yes] to display the sent WarpMap.


Projector Warping Tool
Will be transferred to Warp1. OK ?
Yes
No
Sending...
Data transfer to Warp1 is complete.
Would you like to display Warp1 ?
Sent WarpMap will be applied to the projection image

3.11 Load WarpMap

User can load the WarpMap file from Warping mode 1 - 3, which is saved in the projector, and display the file on the edit area of main window. The WarpMap, which the user can load, is limited to the one that is sent by using this tool.

User can load the WarpMap file by selecting [Projector] - [Load WarpMap] - [Warp1] / [Warp2] / [Warp3] from the menu or clicking the / / button at the tool bar in the main window. Please click [Yes] in the confirmation message window to load the WarpMap which is saved in the projector's specified storage location and to display it within the edit area of main window.



3.12 Select Warping Mode

User can switch the Projector's Warping Mode by selecting [Projector] - [Warpig Mode] - [OFF] / [1] / [2] / [3] from the menu in the main window.

3.13 Display Help

User can display Help for this tool by selecting [Help] - [Contents] from the menu or clicking the ? button at the tool bar in the main window.

3.14 Display version

User can display the version of this tool by selecting [Help] - [About] from the menu in the main window.

4. Restrictions

Restrictions for this tool are shown below.

- Please use this tool when projector is turned ON.
- This tool may not function well when there is firewall software, other than Windows Firewall, installed to the PC. Please register this tool as exceptional or disable the firewall software by referring the manual.
- The connection may fail if the user goes through the connection procedure of the LiveViewer application during the usage of this tool.